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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/796,976

03/11/2004

Ho-Chieh Yu

BHT-3230-98

4047

7590 02/22/2007
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EXAMINER

WARTALOWICZ, PAUL A

ART UNIT

PAPER NUMBER

1754

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

02/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/796,976

Applicant(s)

YU ET AL.

Examiner

Paul A. Wartalowicz

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6,8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,8 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Withdrawn Rejections

The claim objections, 35 USC 112, and 35 USC 102/103 rejections over Takanishi of record put forth in the previous Office Action have been withdrawn.

Response to Arguments

Applicant's arguments filed 12/1/06 have been fully considered but they are not persuasive.

Applicant argues that due to applicant's amended claim 1 that include the recitation "B is a metal..." the Examiner has not shown that Tao teaches this element of Applicants' claims.

However, Tao teaches a formula of $\text{La}_x\text{Mn}_y\text{A}_a\text{B}_b\text{Cu}_c\text{O}_d$ where A is an alkaline earth metal, B is selected from the group consisting of scandium, yttrium, and a lanthanide metal, x is from 0 to about 1.05, y is from 0 to about 1, a is from 0 to about 0.5, and d is between about 1 and about 5 (paragraph 011). In the disclosure (particularly paragraph 011) of Tao, the limitations of the instantly claimed invention are taught or suggested.

Applicant argues that with respect to 103 rejections over both Tao and Takanishi, the occupation of the copper ions in the B site of Applicants' claimed compounds is a factor for the stability of these structures. Additionally, the large amount of oxygen

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vacancies in Applicants' claimed compounds makes the claimed material more suitable for application as cathode material for solid oxide fuel cells.

However, Tao teaches introducing ions having valence numbers of less than four in a lattice structure (trivalent copper is an ion having a valence number of less than four, paragraph 0037, lines 25-30) in a lattice structure for the purpose of having extra oxygen anion vacancies in the crystal lattice (paragraph 0037, lines 27-30). This disclosure suggests that to one of ordinary skill in the art to use ions having a valence of less than four (including three). The limitation of "doping of A-side by alkaline earth metals" is a process limitation. It appears that the instantly claimed product by process is the same as that which is claimed (materials for cathode comprising copper in trivalent form, forming perovskite having oxygen vacancies). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessman*, 180 USPQ 324. In the instant case, the applicant has argued lack of teaching doping of A-side by alkaline-earth metals, but has failed to establish that their trivalence copper ion with perovskite having oxygen vacancies is different.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation in claim 1 "doping of A-side by alkaline earth metals" renders the claim indefinite. It is unclear as to how "doping of A-side by alkaline earth metals" affects the properties of the final product or what "A-side" is.

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 6, 8, and 9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tao (U.S. 2002/0015877).

Tao teaches a materials for solid state cathode (paragraph 0011, lines 1-3) wherein said materials having general form of $\text{La}_x\text{Mn}_y\text{A}_a\text{B}_b\text{Cu}_c\text{O}_d$ wherein A is an alkaline earth metal, B is selected from the group consisting of scandium, yttrium and a lanthanide metal, C is selected from the group consisting of iron, cobalt, nickel, copper, and zinc, x is from 0 to about 1.5, y is from 0 to about 1, a is from 0 to about 0.5, b is from 0 to about 0.5, c is from 0 to about 0.5, and d is between about 1 and about 5 (paragraph 0011) wherein at least one of x, y, a, b, and c is greater than zero (this meets the limitation wherein copper is partly converted to trivalence ion as met by the formula CuO_3 , paragraph 0011, lines 16-18) and the materials for cathode in a solid oxide fuels cell is operable at a temperature of 400°C to 2000°C (paragraph 0007, lines 8-10). Tao teaches introducing ions having valence numbers of less than four in a lattice structure (trivalent copper is an ion having a valence number of less than four, paragraph 0037, lines 25-30) in a lattice structure for the purpose of having extra oxygen anion vacancies in the crystal lattice (paragraph 0037, lines 27-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide introducing ions having valence numbers of less than four in a lattice structure (trivalent copper is an ion having a valence number of less than four, paragraph 0037, lines 25-30) in a lattice structure in Tao in order to have extra

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oxygen anion vacancies in the crystal lattice (paragraph 0037, lines 27-30) as taught by Tao.

As to the limitation of doping, converting, forming, utilizing, compounding, and obtaining, it appears that the instantly claimed product by process is the same as that which is claimed (materials for cathode in solid oxide fuel cells). When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process as making. *In re Brown*, 173 USPQ 685 and *In re Fessman*, 180 USPQ 324. Tao teaches materials for cathode in solid oxide fuel cells having the form as of $\text{La}_x\text{Mn}_y\text{A}_a\text{B}_b\text{Cu}_c\text{O}_d$ described above such that the structure of the prior art is substantially similar as the claimed invention.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

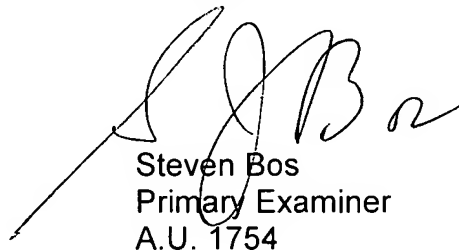
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz
February 15, 2007



Steven Bos
Primary Examiner
A.U. 1754